

### **ABSTRACT**

A centrifugal pump pumps well fluid with a high gaseous content by utilizing an impeller design for use in gaseous liquids. The impeller has high discharge angles and large balance holes. The impeller has short and long vanes alternating with each other. The shorter vanes have a leading surface that is concave in shape. In one design, the longer vanes have a radially outward portion of a leading surface that is concave in shape. The radially outward portion of the longer vanes of this design has substantially the same radius of curvature as the shorter vanes. The radially inward portion of the leading edge of the longer vanes can be concave or convex in shape. The outer ends of the longer vanes can extend from the circumference of the impeller or be located inward from the outer ends of the short vanes